

Inventor: HALL ET AL
Serial No.: 09/889,370
Filing Date: 07/17/2001
Examiner: KERN, Kevin P.
Group Art Unit: 1725

Amendments to the Specification:

Please delete the paragraph beginning at page 3, line 26, with "Accordingly, the present invention provides a . . .".

Please add the following new paragraphs after the paragraph beginning at page 2, line 20, with "We have now found that a particularly advantageous . . .":

Accordingly, the present invention provides a reactor for processing a gaseous medium, the reactor including a reactor bed and at least two electrodes, conduits for constraining a gaseous medium to flow through the reactor bed, a power supply unit connected to the reactor bed for generating and applying a potential across the reactor bed for exciting an electric discharge in the gaseous medium as it flows through the reactor bed, wherein the reactor is a dielectric barrier discharge reactor wherein at least one of the electrodes has a dielectric barrier coating applied thereto, the reactor bed and the power supply unit being located adjacent to each other and enclosed in an electrically conductive enclosure that is maintained at ground potential, and means for electrically connecting the reactor bed and the power supply unit directly together.

The present invention also provides a reactor for processing a gaseous medium, the reactor including a reactor bed, at least two electrodes, conduits for constraining a gaseous medium to flow through the reactor bed, a power supply unit for generating and applying an electric potential across the reactor bed for exciting an electric discharge in the gaseous medium as it flows through the reactor bed, the reactor comprising a dielectric barrier discharge reactor wherein at least one of the electrodes has a dielectric barrier coating coated thereon, the reactor bed and the power supply unit being located adjacent to each other

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and connected directly together electrically, the reactor and the power supply unit forming an electrical circuit, the electrical circuit having a resonant frequency and the power supply unit having an output voltage which has a frequency, and means for making the resonant frequency substantially equal to the frequency of the output voltage from the power supply unit, the reactor being adapted for incorporation into an exhaust system of a variable speed, internal combustion, engine; a step-up transformer having primary windings and secondary windings, an ac generator connected to the primary windings, the ac generator having an output frequency, means for maintaining the output frequency at a pre-determined value regardless of variations in the variable speed of the internal combustion engine in the exhaust system of which the reactor is incorporated, and wherein the engine includes drive means for driving the ac generator at a constant speed.